* NOTICES *

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2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application]This invention relates to the semiconductor device constituted using the packaging system which mounts a semiconductor device on a substrate especially using the paste material for mount, etc., and this packaging system about the packaging system of a semiconductor device.
[0002]
[Description of the Prior Art]When mounting a semiconductor device on a substrate conventionally, the plate for mount is provided on whether (1) semiconductor device is directly mounted on a board material, and (2) board materials, and one method of whether a semiconductor device is mounted on it is used.
[0003]An example of the semiconductor device constituted from a method of the above (2) is shown in drawing 4.
[0004]In drawing 4, 3 is a glass epoxy printed circuit board, and the semiconductor device 2 is mounted on it. It is a metal thin wire to which 1 connects resin for closure to and 5 connects the semiconductor device 2 and the wiring electrode 4 on the substrate 3. Here, the expanded sectional view of the A section of such a semiconductor device is shown in drawing 5.
[0005]In drawing 5, the plate 6 for mount which has the metal skin 7 of gold or silver was formed on the substrate 3, and the semiconductor device 2 has pasted up with the electroconductive glue 9 for mount which consists of epoxy system silver paste material on it, for example.
[0006]Therefore, according to this conventional example, the semiconductor device 2 can be pasted up on the substrate 3, maintaining an electrical connection state with the metal skin 7.
[0007]
[Problem(s) to be Solved by the Invention]There is a general request of improving that

reliability, in this kind of semiconductor device.

[0008]However, in the conventional semiconductor device mentioned above, since having conductivity is imposed as conditions, the kind is limited actually and the fitness cannot necessarily say the adhesives 9 for the adhesive property of the adhesives 9 and the metal skin 7, and compatibility. For this reason, when it was easy to produce an opening between the semiconductor device 2 and the metal skin 7 from the wettable defect of the adhesives 9 and heat stress and bending stress were added, there was a problem that stress concentrated on this gap part and the semiconductor device 2 exfoliated easily.

[0009]When especially the substrate 3 is a thin organic group board like the printed circuit board for IC memory cards, this semiconductor device is weak to bending stress, it is easy to produce exfoliation of the semiconductor device 2, and the fall of the quality and reliability actually poses upper big problem.

[0010]This invention is accomplished in view of the conventional problem mentioned above, and let it be the 1st technical problem to provide the semiconductor device of the high quality which can maintain a good adhesion state between a semiconductor device and a substrate, and high-reliability.

[0011]This invention makes it the 2nd technical problem to provide the mounting method of the semiconductor device on which a semiconductor device and a substrate can be pasted up good.

[0012]

[Means for Solving the Problem]In order to attain the 1st technical problem mentioned above, a semiconductor device of this invention A semiconductor device, A substrate which has a mount surface portion for attaching a semiconductor device, and a compatibility material layer which comprised material which is provided in one field of a mount surface portion, and has electroconductive glue and compatibility of a predetermined kind, It had a conductive layer provided in other fields of a different mount surface portion from said one field, and on a conductive layer and a compatibility material layer, said electroconductive glue was used and said semiconductor device was pasted up.

[0013]In order that a mounting method of a semiconductor device of this invention may attain the 2nd technical problem mentioned above, A compatibility material layer is formed in one field of a mount surface portion for attaching a semiconductor device of a substrate from material which has electroconductive glue and compatibility of a predetermined kind, A conductive layer is formed in other fields of a different mount surface portion from this one field, on a conductive layer and a compatibility material layer, said electroconductive glue is used and a semiconductor device is pasted up.

[0014]

[Function]According to the semiconductor device of this invention, the compatibility material

layer which comprised material which has the electroconductive glue and compatibility of a predetermined kind is first provided in the one field at the mount surface portion of the substrate for attaching a semiconductor device.
The conductive layer is provided in other different fields from this one field.
Since said electroconductive glue was used and the semiconductor device was pasted up on the conductive layer and the compatibility material layer here, about the electrical link between a semiconductor device and a substrate. It can obtain by adhesion with electroconductive glue and a conductive layer, and adhesion between a semiconductor device and a substrate can be simultaneously raised by the compatibility of electroconductive glue and a compatibility material layer.
[0015]As a result, it becomes difficult to produce an opening between a semiconductor device and a substrate, and becomes strong also to heat stress or bending stress, and the quality and reliability of a semiconductor device improve.
[0016]According to the mounting method of the semiconductor device of this invention, a compatibility material layer is formed in one field of a mount surface portion from the material which has the electroconductive glue and compatibility of a predetermined kind, Since the conductive layer was formed in other fields of a different mount surface portion from this one field, said electroconductive glue is used and the semiconductor device was pasted up on the conductive layer and the compatibility material layer, A semiconductor device and a substrate can be pasted up good and the semiconductor device of this invention mentioned above with the mounting method concerned can be obtained.
[0017]From the example of this invention shown below, such an operation of this invention will be clarified more, and also other operations of this invention will be clarified.
[0018]
[Example]Next, the example of this invention is described with reference to drawings. The semiconductor device which is one example of this invention is shown in drawing 1. Drawing 1 expands and shows the portion equivalent to the A section of drawing 4 mentioned above.
[0019]The semiconductor device is provided with the semiconductor device 2, the glass epoxy printed circuit board 3 which constitutes an example of a substrate, and the plate 6 for mount which constitutes an example of a mount surface portion in drawing 1. On the plate 6, the compatibility material layer 8 is selectively formed by spreading of compatibility material. Here, as this compatibility material, it uses here in order to paste up the semiconductor device 2, for example, the electroconductive glue 9 which consists of epoxy system silver paste material and the thing which has good compatibility, for example, the solder resist for epoxy system boards, are used. The metal skin 70 of gold or silver is formed in portions other than compatibility material layer 8 on the plate 6. The semiconductor device 2 is pasted up with such electroconductive glue 9 on these compatibility material layer 8 and the metal skin 70.

[0020]This semiconductor device can be manufactured as the following. That is, first, from the electroconductive glue 9 and the material which has compatibility, the compatibility material layer 8 is formed only in the predetermined field of the plate 6 by spreading art, photoresist art, etc., and it leaves fields other than this predetermined field as an opening etc. Next, plating art etc. are used for this opening and the metal skin 70 is formed in them. Then, if the electroconductive glue 9 is used and the semiconductor device 2 is pasted up on the metal skin 70 and the compatibility material layer 8, the semiconductor device concerned will be obtained.

[0021]According to this example constituted in this way, the electrical connection state of the semiconductor device 2 and the plate 6 of the substrate 3 is secured via the electroconductive glue 9 and the metal skin 70, On the other hand, the good adhesion state of the semiconductor device 2 and the plate 6 of the substrate 3 is mutually secured via the electroconductive glue 9 and the compatibility material layer 8 which have compatibility.

[0022]Other examples are shown in drawing 2 and drawing 3.

[0023]By this example, the semiconductor device is constituted as 16 megabytes of a ROM, drawing 2 shows the top view and drawing 3 shows BB sectional view of drawing 2, respectively. The semiconductor device is omitted in these figures.

[0024]In drawing 3, 60 is the copper plates for semiconductor device mount formed on the substrate 30.

Moreover, it is formed in a field as the compatibility material layer 80 by a solder resist shows to drawing 2, and the gold plating layer 71 is formed in the other portion.

A semiconductor device (not shown) is pasted up with the paste for mount on these layers. Therefore, according to this example, the electrical connection state of a semiconductor device and the plate 60 of the substrate 30 is secured via the paste for mount, and the metal skin 71, On the other hand, the good adhesion state of a semiconductor device and the plate 60 of the substrate 30 is mutually acquired via the paste for mount and the compatibility material layer 80 which have compatibility.

[0025]

[Effect of the Invention]The compatibility material layer which comprised material which according to the semiconductor device of this invention is provided in one field of a mount surface portion, and has the electroconductive glue and compatibility of a predetermined kind as explained to details above, Since it had the conductive layer provided in other fields of a different mount surface portion from said one field, and said electroconductive glue was used and the semiconductor device was pasted up on the conductive layer and the compatibility material layer, About the electrical link between a semiconductor device and a substrate, it can obtain by adhesion with electroconductive glue and a conductive layer, and adhesion between a semiconductor device and a substrate can be simultaneously raised by the compatibility of

electroconductive glue and a compatibility material layer.

[0026]as a result, it becomes difficult to produce an opening between a semiconductor device and a substrate, and becomes strong also to heat stress or bending stress, and the quality and reliability of a semiconductor device are markedly alike, and improve. Since it becomes difficult to produce exfoliation with a substrate and a semiconductor device even when especially a semiconductor device is directly mounted by the thin organic group board like the printed circuit board for IC memory cards and bending stress is added to this substrate, in such a case, the semiconductor device of this invention is very advantageous. A good radiation characteristic is acquired from the adhesion of a semiconductor device and a substrate being high.

[0027]According to the mounting method of the semiconductor device of this invention, a compatibility material layer is formed in one field of a mount surface portion from the material which has the electroconductive glue and compatibility of a predetermined kind, Since the conductive layer was formed in other fields of a different mount surface portion from this one field, said electroconductive glue is used and the semiconductor device was pasted up on the conductive layer and the compatibility material layer, A semiconductor device and a substrate can be pasted up good and the semiconductor device of this invention mentioned above with the mounting method concerned can be obtained.

[Translation done.]